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JUNE 1960

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The Indianapolis Radio Club meets on the 2nd and 4th Friday of each month at the Indianapolis Park Board Building located at 29th and Harding Streets. Meetings start promptly at 8:00 P. M. Indianapolis time.

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Ama-Chewer is published monthly by and for I.R.C. and all Amateurs in this area. Non-Members of I.R.C. may subscribe at the rate of \$1.00 per year.

Publication is on the 3rd Friday of each month, with all news items and ads due no later than the 1st Friday of each month.

Ham-Ads (5 line limit) are free to members and subscribers. Others may use this facility at the rate of 50 cents per ad.

Ama-Chewer welcomes the forwarding of information on coming events of other clubs in the area for publication in the program section.

PROGRAM SCHEDULE

May 20th

SWAP & SHOP NITE

That time is here again, so load up all your surplus gear and come on down.

7:00 P.M. to 8:00 P.M. is SWAP AND SHOP

8:00 P.M. to ??? is AUCTION TIME

June 10th

Regular Business Meeting PLUS Fritz Manning, W9VFN who will describe the construction details of his cubicle quad, which has been so successful on the VHF bands.

June 24th

SSB. by Rolly Boughton, W9PMM. The hows and whys of the new art will be explained in a way that we can all understand. They tell us that when Rolly gets through we will be convinced that S.S.B. is simpler than A.M.

June 25th
& 26th

FIELD DAY-----See the article in this issue for details and find out just where you fit into the picture.

July &
August

We will all take off on our vacations, so there will be no meetings during these months. The Board of Directors will meet on regular schedule to plan the big fall season of events. The Amateur will be issued as usual to keep you informed of the news in and around our town.

* * * * *

WHICH ONE IS WHAT

Do you have a hard time remembering what the difference is between a DIODE and a TRANSISTOR ??? Where does the SEMICONDUCTOR fit into the picture? What is N TYPE and P TYPE? Turn to page 11 and read a condensed description which will serve as a ready reminder in the future.

* * * * *

THE LIST IS GETTING LONGER

Once again we have the pleasure of taking our hats off, to the powers that be, as it has been announced that effective March 17, 1960 third party traffic became a reality between the United States and Honduras. This brings to 13 the places that personal traffic can be handled. Any hot scoop on which will be the next country to join in?????

THE PRESIDENTS FREQUENCY

At the Dayton Ham-vention on May 7th we had another opportunity to renew acquaintances and hear many interesting discussions. This particular Ham-fest is a completely established annual function and enjoys tremendous drawing power, almost equal to the National ARRL convention.

If you come back and explain what was there, it would be the same as last year, and yet everyone enjoyed the day. You ask yourself "What makes a Hamfest a good one, your glad you went to see?" The pattern does seem stereotype-registration, the pleasure of meeting those you know (on the air), exhibits, suspense about the prize drawings, League commitments, collecting all the advertisements, back to the exhibits, back to the prize booth, more news events, the banquet, the disappointment at the drawing of the grand prize when the winning number is one digit larger than yours, your home tired, but you had a good time, but you feel that next year you will pass and admit that you will just be missing the same old show.

But you know what will happen? Come next year you will forget how tired you were, as you get swept up in the magic of a ham get together, and the first thing you know you will be ordering your advance tickets, and looking forward to being a part of the big show.

The appearance of the entire group at Dayton was representative of the high caliber cross section of the men of this country, serious, friendly, a note we were glad to see. We noticed the absence of huge call letters, top hats, straw hats etc. It was a gang of hams we were glad to be a part of, and just like everyone else, we will be going back next year, to see the big show. See you there!!!!

* * * * *

Remember-----a microphone is not a megaphone, but an ear, speak carefully.

David Sarnoff

* * * * *

WARNING

W9MNA, has a bent rotor support and is getting ready to offer 1/2 can of antenna fluid per helper, on a given Sunday. Give Foxie a call if you would like to give him a hand, as he is unable to shinny up the mast at the present time.

* * * * *

On our cover this month is Mr. Single Side Band himself, Ralph Bundy, W9MEK. Ralph had been interested in Amateur Radio for many years and obtained his present call shortly after WW-II. After some AM work, the SSB bug bit real hard and Ralph became one of the first SSB operators in Central Indiana.

W9MEK, has used a variety of gear and at present his station is equipped with just about the best there is for SSB, as he is using a Central Electronics 100V, driving a 600L final to 1 1/2 KW. The receiving is covered by a Collins 75A4.

Most of the W9MEK activity is on 75 meters, however a new beam is in the works and some DX work is planned in the near future, SSB of course.

Ralph was very active in the formation and organization of the Indiana SSB Net, which meets on 3920kc every night at 7:00 PM. He recently ended a term as manager of this net and is continuing as a regular net member. He is also active in the Interstate SSB Net which handles traffic all over the country. As an example of the effectiveness of SSB, Ralph says that they never had all 48 states in on one session, but they have had 45 states in the net at one time.

During the Lake Charles, La. hurricane in '58, Ralph was available during the communication blackout and handled a number of messages into the disaster area, for people in Indianapolis, who had relatives in the danger area. On one occasion he originated a message from here, and had an answer back in about 8 hours.

Ralph feels that SSB is here to stay and that it will be used more and more by Amateurs as they learn how to use it, and realize its value and effectiveness. After 8 years and several hundred hours of operating time, W9MEK stoutly states that he is not in the market for any AM equipment.

* * * * *

GOONEY BOX SKED

5-13 to 5-27--W9RTH
5-27 to 6-10--K9IXD
6-10 to 6-24--K9LZJ
6-24 to 7-8 --W9JZV
7-8 to 7-22-- W9EIV
7-22 to 8-12--K9SUW

Contact the Chief Op. for the 6M rig. The schedule now runs from meeting night to meeting night, which gives you two weeks to get your feet wet in the VHF bands.

Note: The rig will be used on Field Day as part of our VHF gear.

If you have noticed a shortage of cardboard boxes at your local food market, if you have noticed a smile on the lips of many Indpls. XYL's, if you have noticed the activity in many ham shacks after the sun has gone down, its because the boxes are full of surplus gear, the XYL's are planning how to use all that extra space that will soon be available, and the local boys are sorting out that secret stock pile preparing for the ANNUAL SWAP AND SHOP AUCTION.

As reported last month, the Chief Op. has plans to serve up refreshments, which will keep us from getting dry and parched throats as we bid on the "Goodies."

The advance sale of tickets for the raffle of the Millen Grid Dipper has been very successful, so we are going to add a second and third prize, consisting of a Heath Resistor Substitution Box and a Heath Condensor Substitution Box. Nothing like going first class!!!!

Remember the Swap and Shop portion of the evening will take place from 7 to 8 PM. The auction will start promptly at 8 PM with the golden voice of you know who, getting the most for the least, or the least for the most, depending on whether you are selling or buying.

Pass the word around so that no one misses out on the event and above all don't forget to show up yourself. We are looking forward to a swell time and lots of fun, so come early, stay late, take a crack at the prizes, and the hot items that will be on sale or being auctioned.

Remember, nothing over seven tons in total weight may be sold or auctioned, however hot air will be available in large quantities at no cost.

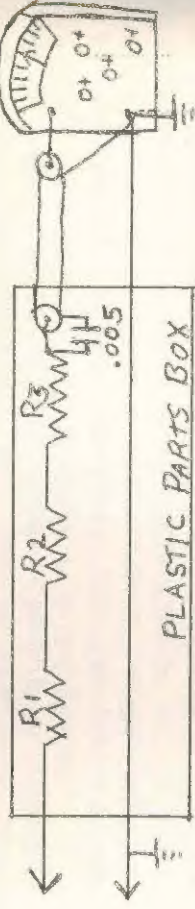
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V. H. F. CERTIFICATES

A check with our noble Scribe, K9JSF, tells us that not very many of our members or other VHFer's have applied for the IRC, VHF Certificate. As of this writing only four have been issued, which is far less than was expected. It would appear that this dandy award should be hanging in a good many shacks around town.

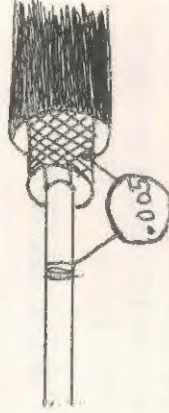
Take a check on the log and see if you haven't had enough VHF contacts to get yours. Take a look at the February issue for rules, or give us a call and you can get some fancy wall-paper.

It has been suggested that it would be advantageous to be able to measure D.C. voltage in circuits where RF is present without the danger of damaging the meters. This is possible if the person making the measurement uses care, and is not desirous of extreme accuracy in the results.



The accessory shown above may be made up in the form of a probe by mounting the parts in a small plastic box. The use of such a box gives excellent insulation of both DC and RF voltages. The resistors should be of the molded composition type and of one or two watts rating, depending on the voltage range you intend to measure, and of such a value that an easy multiplying factor may be applied to the voltage meter scales for easy interpretation. The accuracy of the readings will range between ten and twenty variations, depending on the accuracy of the resistors used and the multiplying factor used with the meter.

It is most important to use shielded cable of the co-ax type for the hot lead of the probe to the meter and the shielded MUST be grounded at both the equipment under test and the voltmeter to prevent damage to the meter. The bypass capacitor should be of the disc ceramic type and mounted right on the end of the coax cable between the shield and the center conductor, as illustrated below.



Remember that plate voltages and RF voltages in the final stages of even low powered rigs can cause severe shocks and burns. It's always best to connect your probe with the equipment turned off, then turn the power on, take your reading, turn it off and remove probe. This is the way hams live to enjoy more QSO's after the ailing rig has been repaired.

We are rapidly approaching the end of June again at which time the Annual ARRL Field Day contest will take place. We did very well last year but I am sure that we will do much better this year.

It has been arranged for us to have our installation at the State Fair Grounds this year. The Civil Defense trailer "The Reluctant Dragg-In" has already been spotted at the site. In addition I have arranged to have the use of one or two large shelter tents belonging to the Marion County Office of CD. We will also have the use of a second one hundred foot tower that the State Police use for emergencies.

As can be seen from the above we will have ample facility for both VHF and HF antennas. There are also several flag poles and large trees that can be pressed into service for antenna supports. In addition I hope to get permission for the use of the fire tower for use as an antenna support if it seems necessary or advisable.

As for the actual equipment and operators, that is where we come to the final stages of planning and I hope your participation. We plan to have ample operating positions available for everyone who wishes to operate and I am sure that we will have enough modes of operation available to suit everyone. We will have CW available on atleast three bands, and AM on atleast four or five bands. We plan on fixed frequency FM on one band, SSB on atleast one band and if it is desired perhaps on others. So far we have teams that have assured the Chief Op. that they intend to operate on CW, AM and SSB.

Please contact the Chief Op. or any of the club officers if you wish to fill in the Field Day plans of the IRC.

Doyle J. McVickers, Chief Op.
MEIrose 2--9609

Don't wait until the last day to get in touch with the Chief Op. or you will find that the time and band you want to work may be taken. Get a partner and call Mac pronto, so that he can get your call on the list. Being at the Fair Grounds will make it a short trip for all, so don't miss out on this years doings.

This is the fifth in our series of stories on our advertisers who help bring the Ama-Chewer to you.

**CLIFF ALSOP
FROZ-N-FOOD INC.**

Cliff Alsop, W9EKD, must be older than he looks because he is a real old timer, being licensed in 1921 as 9CAW. From his ad on the inside front cover you can see that he operates and owns "Froz-N-Food Inc." at 59th and College and at that location they make all their own ice cream and ice cream novelties.

Cliff started this business in 1944 and specialized in frozen food lockers, but during the passing of time that end of the plant tapered off in favor of flavor. (ice cream flavor). You will also find a spotless snack bar for sandwiches and malts etc. at the back of the store. If you stop by for a "cook's tour" you will be shown rooms full of ice cream and associated machinery, which is about as shiny and spotless as can be. Imagine working in an ice cream factory! I'd get fat as a hog in no time.

Cliff grew up in Effingham, Ill. and it was there he built and operated his first spark gap rig as 9CAW, at about 500 watts. Somehow that license lapsed and he moved to Indpls. in 1924, at which time the bug bit again and he was licensed W9EKD which has been an active call ever since. (In between ice cream dips that is, Ed.) During the war Cliff worked at the Naval Ordinance in experimental work in high altitude test chambers and specialized on the Norden Bomb Sight.

He has been on SSB since 1956 and now operates a KWS1 and a 75S1 with a 3 element Telerex beam. He took on a side line several years ago and acted as cupid's assistant, when he patched ex-Hoosier, Monte Blue, then in California, to some old friends here in Indianapolis. After a series of patches the YL at this end of the line became Monte's XYL. How's that for service?

So some evening when you are out riding, stop in the store on the N.E. corner of 59th and College and try some of that fine Hoosier Green ice cream. If Cliff isn't out in his T-bird yacking on the KWM1, I'm sure he will be glad to eyeball for a spell, but not too long, as that ice cream brings them from far and near and he is a busy guy.

W9HFQ the Tech High Radio Club is now on 2 thru 80 and is going after W.A.S.

K9AOM, Bill Hickok, is the new manager and P.A.M. of the Indiana Side Band net.

A new ham in the area, is A.W. Black II, with two new calls, K9YGV and Kn9YGV, wonder how he gets to the rig with old "MNA" squatting in front of it??

W9BZB, Merrill Price, has a new Central Electronics 100V exciter and is giving the band the jolly going over.

K9VDP, George, has a new AF 68 Elmac, replacing the Gooney Box and we hear that he likes it real well.

K9QWU, Max, from down Columbus, Ind. way, is operating a mobile in our neck of the woods on Sunday mornings, and would like to catch some of the early risers, looking south on 50.8.

K9VKL, Dave, is fresh out of a tour with the Marines and can be heard operating on 6M locally.

W9JJC, Alvey, has a "Old Timers Certificate" to hang in the shack as wall-paper.

K9CRS, Ed, shipped out to Florida for two weeks and we understand he enjoyed the rains very much.

W9EIR, got a real charge with a fishing pole last April 15th when he hooked and netted a 6lb 9 oz. bass at Patton Lake. He calmed down however when on the following weekend his XYL almost had a repeat with a 5lb. 3 oz'er.

We are glad to see some of the old timers back at club meetings. Chet Martin, W9LWN and Charlie Willoughby, W9QLU were on hand to hear Cliff's talk on RTTY.

W9SFR, Steve, is DXing on 20M with a SSB rig.

Angus went up to Grand Haven to put the boat back in the water and we are all hoping for an invite to the annual cruise in August. If you have never made the trip its a real treat, unless you have a hard time keeping your tea.

Hope you like our changing colors on the front page, we feel that we have to be just like the other BIG mags.

We haven't the official word as yet, but the scuttle butt says that effective June 6th, 1960 the 50.0 to 50.10 portion of the 6M band will be assigned as CW only. There are also some changes on 2M, but we will have to wait on our issue of QST for the final word.

On April 22nd Cliff Singer, W9SWD, put on a demonstration and talk on RTTY for the club members. Cliff explained some of the machines such as the page printer, tape printer, and reperforators, plus some general background information on availability, etc.

Using a block diagram Cliff showed the equipment necessary and further explained the 163 MS characters and how they are divided into a 22 MS start pulse, five 22 MS digit pulses, and a 31 MS stop or mark pulse.

Using a receiving converter from the shack of Fred, K9KKF, and the clubs Gonset 6M Transceiver, Cliff contacted "Butch" K9IXD for an on the air demonstration.

After the demonstration Cliff covered the details involved in building a converter, and how a frequency shift of 850 cycles is used between the frequencies of 2125 and 2975 kc for both FSK and AFSK.

From the interest shown after the talk, it would appear that we can expect a few more RTTY stations in the area, which will make the trials and pains of getting on the air a little easier in the future, for as Cliff stated, it takes a little more than a trip to the local dealer to join the ranks and the more experience we have locally the better it will be for the next guy.

* * * * *

WHAT A DEAL FOR THE VHF BOYS

An antenna-amplifier combination that "hears" signals from outer space thirty times clearer than conventional microwave receivers has been developed by Bell Telephone Laboratories for experimental communication via satellites.

The antenna-amplifier combination could be extremely useful in investigating interplanetary radio signals of all kinds regardless of origin.

The combination has a lower noise "temperature" than any complete receiving system ever demonstrated, and makes it possible to measure noise generated in the atmosphere with precision never before obtained.

(What was all this chatter about there being nothing new in the radio field for amateurs to work on, or to develop?? Ed.)

* * * * *

IRC IS YOUR CLUB, SUPPORT IT, ATTEND MEETINGS

WHICH ONE IS WHAT??

Listed below is a condensed summary of the units that we bump into very often in the new era of radio, which should help us keep them straight in our minds.

* * * * *

WHAT IS A SEMICONDUCTOR?

Current flows through an electrical conductor such as copper in the same manner that water flows through a pipe. The "water" in a copper wire is electrons that are very loosely bound to the copper atom. An electrical potential pushes electrons in one end of the wire, and these push other electrons out the other end. By contrast, a semiconductor such as pure silicon ties up its electrons more securely-like a pipe full of water that has frozen. However, if the electrons are loosened by heating or adding energy in the form of light, they will flow through a semiconductor like current in an ordinary conductor. A semiconductors ability to carry current depends partly on impurities in the material. Different impurities produce different kinds of conduction; the difference between the two kinds as shown below is basic to all semiconducting devices.

N-TYPE semiconductors contain a trace of an impurity whose atoms carry an extra electron, such as silicon, with four electrons, which has been doped with arsenic, with five electrons. The extra arsenic electron is available to carry current in much the same manner as the loosely bound electron in a good conductor such as copper.

P-TYPE semiconductors contain an impurity that has one less electron such as silicon which has been doped with aluminum which has three electrons. Since aluminum has one to few electrons to fit neatly in the crystal, it leaves a hole. The holes are roughly equivalent to positive charges and will absorb an electron, then reappear. Electrons jumping from hole to hole, so to speak, carry current through the semiconductor.

* * * * *

WHAT IS A TRANSISTOR?

A transistor looks like a sandwich and behaves like a valve. It has three layers: The two outer layers are either both P-TYPE or both N-TYPE semiconductor material; the center or base layer is the opposite type, but with only enough impurities added to make it slightly so. No current can flow from the top to the bottom layer. The reason is that it is blocked by the junction between the center and bottom layers; in this junction area, the holes and extra (con't page 12)

electrons that otherwise would act as conductors are forced apart, just as in a diode. However by injecting a small current into the center layer increases the number of free holes or electrons in the center, and these create a bridge across the resisting lower junction. The bridge permits a much larger current to flow from top to bottom than is injected into the center. This phenomenon can increase a small current up to 40,000 times.

WHAT IS A DIODE??

A diode is a one-way electrical gate. Inside a semiconductor crystal containing an impurity, there is an area or "junction" where the impurity changes from "n" type to "p" type. In this area, current in one direction puts a negative charge on the "p" type crystal and a positive charge on the "n" type crystal. This pulls the holes and extra electrons that would function as conductors away from the junction area and prevents current flow. But when the current is reversed, the holes and extra electrons flow toward the junction and combine, permitting current to pass.

WHAT IS A MODERN AMATEUR

A modern amateur is a ham who will use the above as a spring-board into the complex mysteries of the semiconductor devices. Many volumes have been written and no doubt there will be many more in the near future, but just a clear understanding of the basic ideas will help in the understanding of our inevitable future.

CHECKING TV VIEWING

The following comes to us via the King's of the Roundtable and CQ Club Bulletin for March.

A new survey method developed by RCA, will enable TV broadcasters to discover the program you are watching without ever having to ask you. The method uses the radiation given off by home receivers to determine the channel being viewed by a certain set.

The radiation would be monitored by a mobile unit driving down a residential street. By checking the received radiation as the unit passes different houses, a quick survey could be done for the most popular time. RCA says the system might be used in the future to find who might be "pirating" a paid TV broadcast. (We wonder how quick someone will come up with a "jammer" for that idea. Ed.)

Last month we discussed the early interest in amateur radio so this month let us revisit some of those stations some 20-30 years ago. Written from memory and with some assistance from the Eighth edition, 1931, of the ARRL handbook here goes times backward spiral.

The visitor notes that the shack contained homebrewed gear almost all the way. The receiver with the exception of a few Pilot Super Wasp kits or National SW3's were usually using a storage battery filament supply to UX 201-A's or a UX 222 screen grid detector. The plate supply was either a block of "B" batteries or the new "B" eliminators using type 80 rectifiers, the new BH gaseous rectifier (both still find some use) or a Balkite or Philco chemical rectifier supply. These receivers for the most part were either breadboard style or in a wood cabinet with perhaps a bakelite panel with tin foil--yes real tin foil--pasted on the back to eliminate body capacity effects. A few had gone to metal panels screwed to wood bases to get rid of the body capacity effect. That is something we don't run into these days of all metal construction but was ever present in those days. Perhaps a few builders had gotten around to adding 1 or 2 stages of audio and even had a gooseneck speaker or one of the new Cone type Crosley loudspeakers instead of cans. Yes, and the box, a wood one, that the speaker came in was useful for the junk box or making the cabinet to house the set.

From the handbook we note a tuner to cover from 3,000 to 15,000 Kc without using interchangeable coils. This unit consisted of a belt connected arrangement of variable condensers and a variometer. Regeneration was provided on almost all of the receivers and a few even sported an RF stage.

It wasn't long until the AC filament version of the UX 222 came along. This, the 224 followed the 227 which was the AC version of the 201A all of which put the storage battery and battery charger out of the ham shack and left it with the automobile. Oh yes, progress was rolling along. It was an art to put the receiver on the verge of oscillating--not howling--and pull in the DX never minding the AC hum or the microphonic tube noise, the signal was the main thing.

SPLATTER

W9ZTD, Les, is scheduled to lead the Antique Car section of the 500 Festival Parade with his 1929 Marmon. Watch for him take off your hat and bow your head when he goes by, for he's getting married July 17th.

HAM ADS

FOR SALE: Viking Valiant Transmitter
Very Good Condition ----- \$300.00
Marty Carr K9EOI
TR 8-8706

FOR SALE: Two Astatic JT-30 Microphones complete
with stands, cables, connections. Each \$ 5.00
One 300 watt Linear Amplifier, 2-811A's
with power supply & meters ----- \$25.00
Ralph Bundy, W9MEK
LI 7-4068

FOR SALE: 1-20 meter 3 element HiLite Beam
1 Prop pitch motor
1 110v/24v Transformer
1 Pair Surplus Selsyn
1 Selsyn Transformer
The whole works goes for ----- \$50.00
Marv. Mincer, W9HJH
FL 9-8120



All we have to say is "Who said there is no compensation for teaching code to a novice?"

HAVE YOU GOT YOUR TICKET

Our spies tell us that not all of you guys have picked up your ticket for the Central Division Convention. So dig down and get your four bucks into Pat, who has the tickets that IRC purchased for resale to our members. In the event that you want more than he has, he will be glad to refer you to the IRCC Chairman in charge of Advance Sales. Four bucks now and five at the gate, so save that dollar for an ice cream cone during the big time that will come up this fall.

GO BACK AND READ IT AGAIN

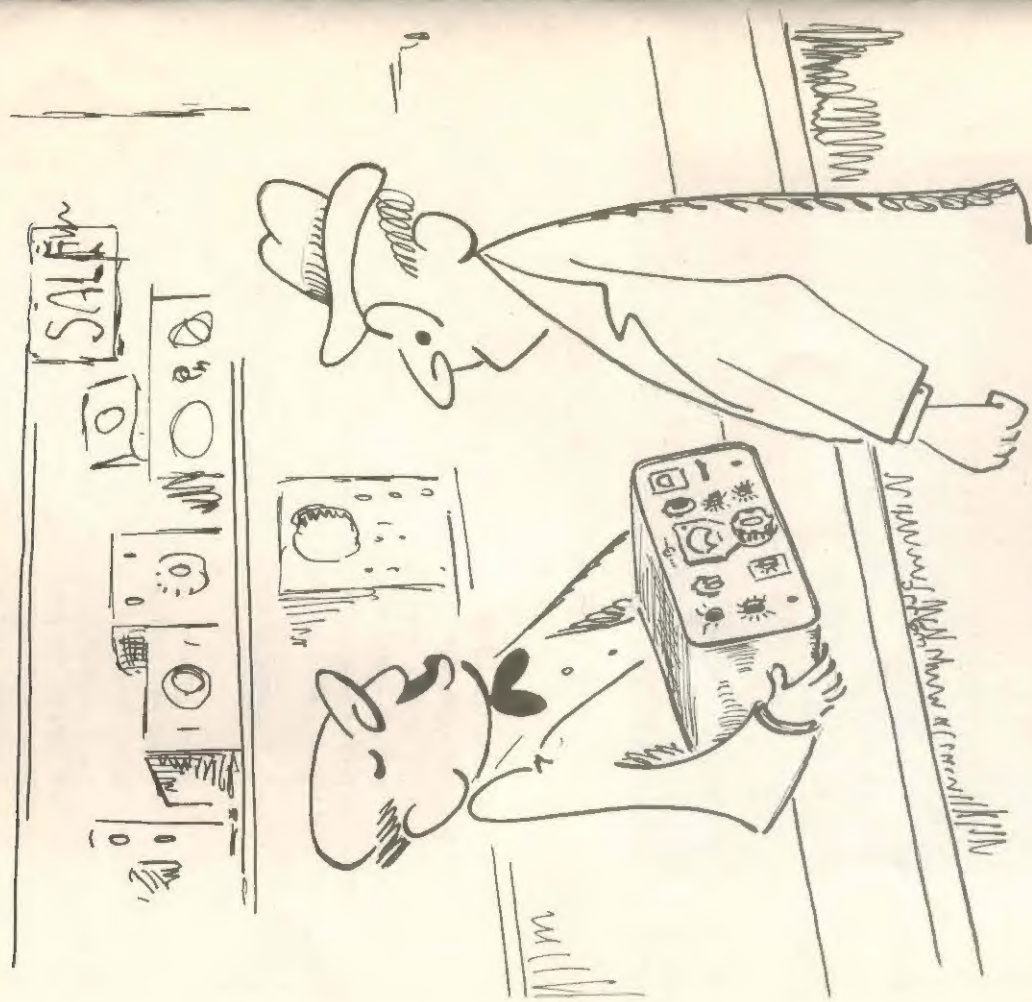
In the March issue of QST there appeared an article on V.H.F. Dummy Loads by E.P.T. At first reading this article didn't hit home, but later we decided to give the gadget a try, and we wish to report that it is 100% successful. We highly recommend that all VHF operators look the above article up, and we feel sure you will want to try this type of load.

MORE EYEBALL CONTACTS

Continuing the club policy of making as many "Eyeball Contacts" as possible, two members, Winston-K9DWT and his dad Curtis-K9LVS, went 1250 miles to personally deliver a QSL card. Paul-W4EYJ in Miami, Florida, contacted Winston on 20 Meters and ask for a confirming card. Since Spring vacation at North Central High was coming up, Winston waited until the family went south and in Miami visited the W4 shack. Paul is a Eastern Air Lines pilot instructor and with free travel passes, has assembled a rig using parts he has picked up over the three Americas, and he has an impressive layout.

SOMETHING FOR THE WINDSHIELD

We have received an attractive decal for the use of our members on their windshields. It is a W9JP on a outline of Indiana in six colors. They sent samples to all clubs in the call book for publicity. We will have the samples at coming club meetings and if enough of the gang want them at \$1.50 per decal we will get up an order.



THINK OF THE HAPPY HOURS - THE DX QSOs
 THE THRILL OF SOLID CONTACTS -
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 ARE YOU GOING TO OVERLOOK
 ALL THAT JUST BECAUSE
 YOU CANT AFFORD IT?

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